U.S. Healthcare Infrastructure Analysis

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Pain Point (What): Can data help identify areas of improvement in US healthcare?

- Why:
  - The idea is to generate value from the data that helps understand essential aspects of U.S. Metropolitan healthcare and demographics.
  - The vision of the issue is to analyze US healthcare demographics data.

- I will explore the United States (U.S.) metropolitan healthcare data universe

- Indicators/Aggregates (How):
  - No. of hospitals vs. No. of doctors
  - Doctor-hospital ratio comparison in top vs. bottom areas
  - Doctor-hospital ratio across all metropolitan areas
  - Doctor-Hospital Categorial Comparison

Confirming the how and relevancy of first results

IN THE NEXT SLIDES YOU WILL SEE HOW WE WILL PREPARE THE INDICATORS/AGGREGATES

Confirmation of indicators/aggregates built based on these datasets

Dataset Information

- The dataset was retrieved from Kaggle.com

- The dataset contains - U.S. Census Bureau regularly collects information for many metropolitan areas in the United States, including data on number of physicians and number (and size) of hospitals. This dataset has such information for 83 different metropolitan areas.

Steps In Data Preparation (HOW)

- Checking data structure

- Checking missing values

- Checking contents per column

- Checking for errors

- Data cleaning

- Data summary

# Confirmation of the way the indicators/aggregates are interpreted

NEXT SLIDES CONTAINS RELEVANCY

Data Contents and Description

| Column Name	Description
City	Name of the metropolitan area
NumMDs	Number of physicians
RateMDs	Number of physicians per 100,000 people
NumHospitals	Number of community hospitals
NumBeds	Number of hospital beds
RateBeds	Number of hospital beds per 100,000 people
NumMedicare	Number of Medicare recipients in 2003
PctChangeMedicare	Percent change in Medicare recipients (2000 to 2003)
MedicareRate	Number of Medicare recipients per 100,000 people
SSBNum	Number of Social Security recipients in 2004
SSBRate	Number of Social Security recipients per 100,000 people
SSBChange	Percent change in Social Security recipients (2000 to 2004)
NumRetired	Number of retired workers
SSINum	Number of Supplemental Security Income recipients in 2004
SSIRate	Number of Supplemental Security Income recipients per 100,000 people
SqrtMDs	Square root of number of physicians

Presentation of the visual restitution to "give life" to the indicators/aggregates

Number of Doctors for Each Metropolitan Area

Number of Hospitals for Each Metropolitan Area
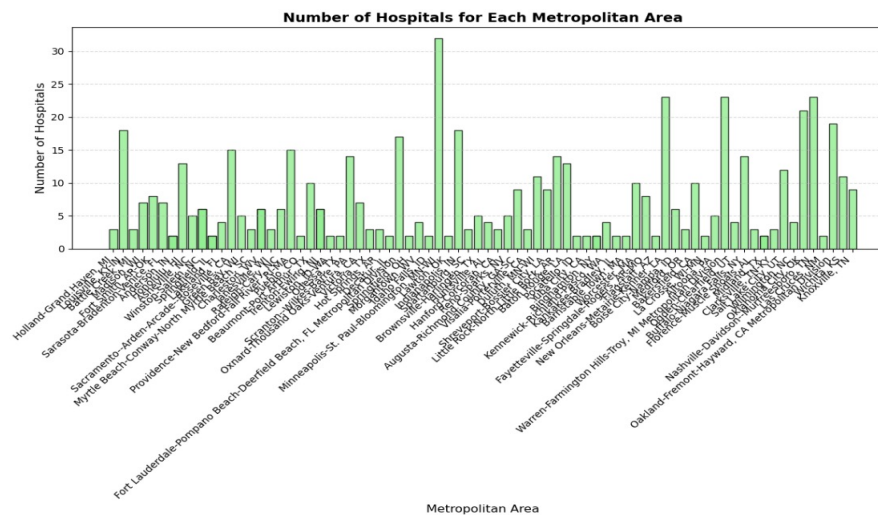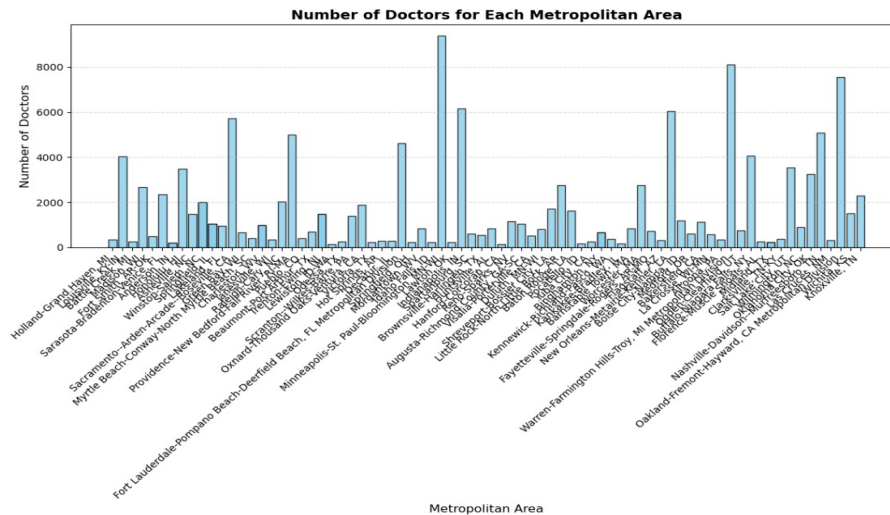
No. of Hospitals vs. No. of Doctors

Interpretation: From these bar graphs we can see the no. of physician strength per city as compared to no. of hospitals across the US metropolitan areas.

In the final presentation we will see how it will create value.

Doctor-Hospital Ratio for Each Metropolitan Area
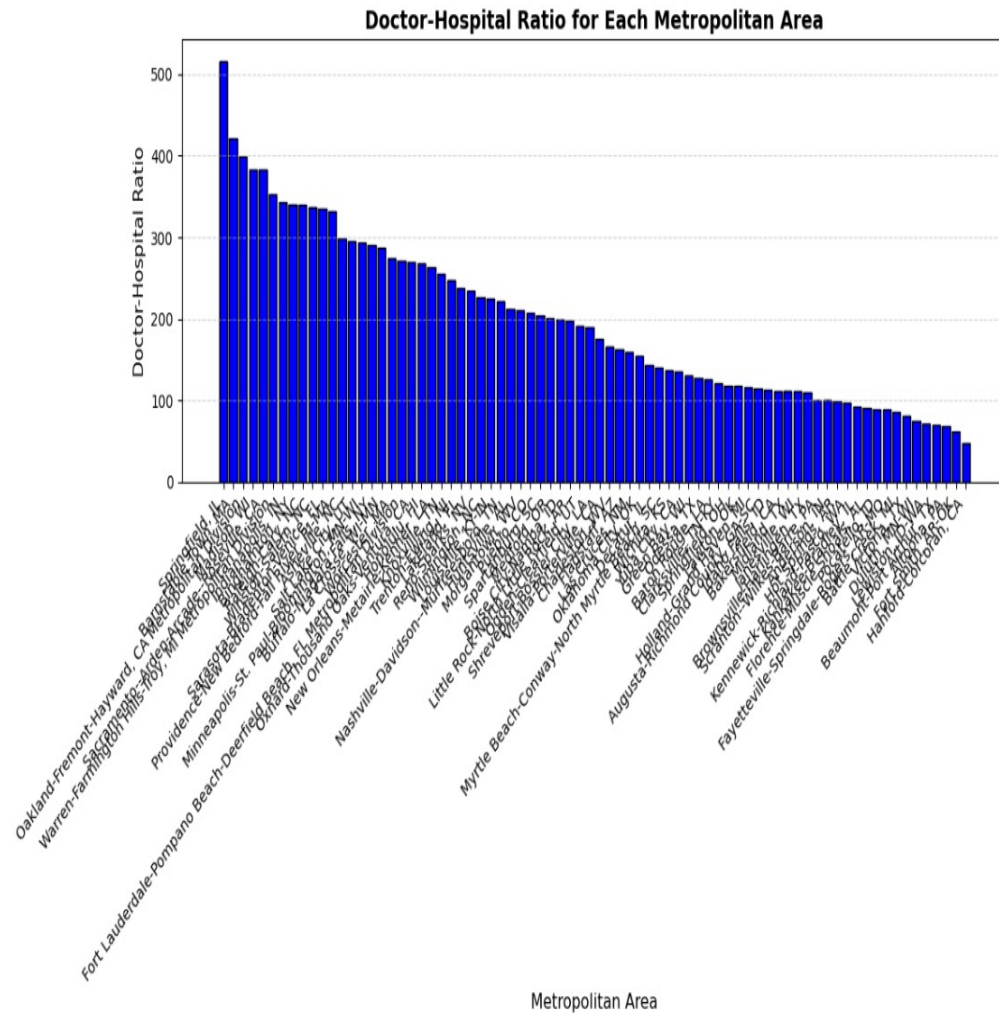
Doctor-Hospital ratio comparison in top vs bottom areas

Interpretation: In this bar graph we can see how the top hospitals have over 500 doctors as compared to bottom has 50.

In the final presentation we will analyze how this helps create value.

Top Areas with the Best Healthcare Infrastructure

Bottom Areas in Need of Further Improvement
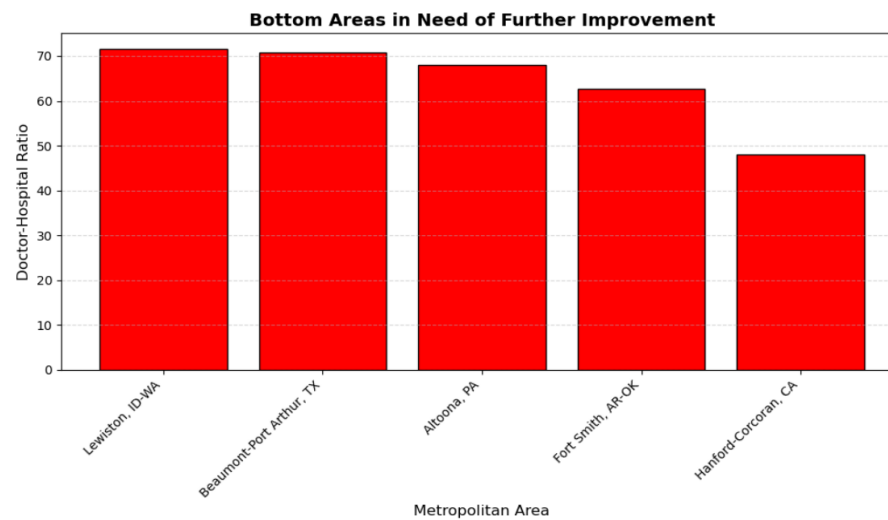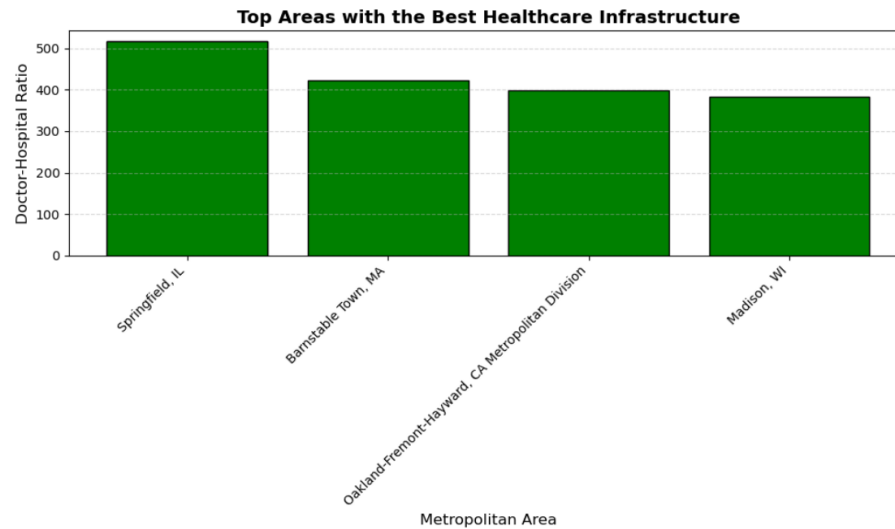
Doctor-Hospital Categorial Comparison

In the bar graph, we can can categorize top 4 and bottom 5 hospital with best and need for further improvement respectively.

Relationship between Number of Hospitals and Number of Doctors
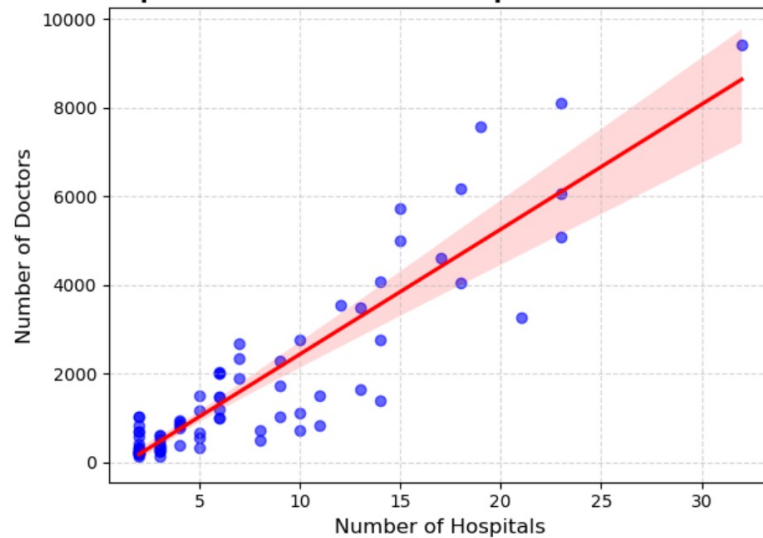
Doctor-Hospital ratio across all metropolitan areas

In this scatter plot, we can see how more number of hospitals increase number of physician in the area. Thus, we can say hospitals have direct effect on number of doctors in the area.

Thank you